That which is claimed is:

1.   A method of identifying antibodies having binding affinity for an antigen, said method comprising:

(a)   contacting an array of uncharacterized antibodies on a solid surface with at least one antigen; and

(b)   identifying the antibodies to which the antigen binds.

2.   A method according to claim 1 wherein the antigen is a protein.

3.   A method according to claim 1 wherein the antigen is an intact cell.

4.   A method according to claim 1 wherein the antigen is a cell lysate.

5.   A method according to claim 2 wherein the protein is recombinant.

6.   A method according to claim 5 wherein the protein is full-length.

7.   A method according to claim 5 wherein the protein is a protein fragment.

8.   A method according to claim 7 wherein the protein fragment is encoded by an EST fragment.

9.   A method according to claim 1 wherein the antibodies are monoclonal antibodies.

10   A method according to claim 1 wherein the antibodies are polyclonal antibodies.

11.   A method according to claim 1 wherein the antibodies are antibody fragments.

12.   A method according to claim 11 wherein the antibody fragments are single chain antibodies.

13.   A method according to claim 1 wherein the antibodies are recombinant antibodies.

5   14.   A method according to claim 1 wherein the antigen is detectably labeled.

15.   A method according to claim 14 wherein the detectable label is a fluorescent moiety, avidin, streptavidin, or biotin.

10   16.   A method according to claim 1 wherein the antigen is a fusion protein comprised of an epitope tag or a fluorescent protein.

17.   A method according to claim 1 wherein the binding affinity of said antibody for said antigen is 15 determined by iterative washing of said solid surface with a suitable diluent and detecting when antigen is no longer released therefrom.

18.   A method of comparing protein expression in two or more populations of cells, said method comprising:

20   (a)   contacting an array of antibodies on a solid surface with a cell lysate of a first cell population, generating a first binding pattern;

(b)   contacting a duplicate array of antibodies on a solid surface with a cell lysate of a second cell 25   population, generating a second binding pattern; and

(c)   comparing the binding pattern of the first cell lysate with the binding pattern of the second cell lysate.

19.   A method according to claim 18 wherein the 30   antibodies are uncharacterized antibodies.

20. A method according to claim 18 wherein the antibodies are recombinant antibodies.

21. A method according to claim 18 wherein the first cell lysate is derived from normal cells and the second cell lysate is derived from abnormal cells.

22. A method according to claim 21 wherein the abnormal cells are cancer cells.

23. A method according to claim 18 wherein the first cell lysate is derived from normal cells in a resting state and the second cell lysate is derived from normal cells in a stimulated state.

24. A method according to claim 18 wherein the difference between the first and second set of cells is the presence of a different detectable label.

25. A method for determining the effect of varying binding conditions on the binding affinity of antibodies to a specific antigen, said method comprising:

(a) contacting an array of antibodies on a solid surface with at least one antigen under a first set of binding conditions, generating a first binding pattern;

(b) contacting a duplicate array with the antigen under a second set of binding conditions, generating a second binding pattern;

(c) comparing the first and second binding patterns.

26. A method according to claim 21 wherein said varying binding conditions comprise varying pH, temperature, salt concentration, and/or duration.

27.   A method for characterizing a cell, based on the pattern of protein expression produced thereby, said method comprising:

5   (a)   contacting an array of antibodies on a solid surface with a cell lysate; and

(b)   identifying the profile of antibodies to which components of the lysate binds.

28.   A method of diagnosing a disorder, said method
10   comprising:

(a)   contacting an array of antibodies specific for one or more antigens characteristic of a disorder with a biological sample obtained from a subject under conditions suitable for the formation of an
15   antigen:antibody complex, wherein the presence of the antigens in the biological sample would be indicative of the disorder; and

(b)   detecting the formation of any antibody: antigen complexes.

20   29.   A method according to claim 28 wherein the biological sample is cerebral spinal fluid, blood, plasma, urine, feces, saliva, tears, or extracted tissue.

30.   A method according to claim 29 wherein the disorder is stroke, cerebral hemorrhage, myocardial
25   infarction, peripheral blood clots, diabetes, cancer, Alzheimer's disease, and sepsis.

31.   A kit comprising:

(a)   an array of uncharacterized antibodies on a solid surface; and

30   (b)   instructions for using the array.

32. A kit according to claim 31 wherein the instructions are for identifying antibodies to a specific antigen, comparing protein expression in two or more populations of cells, characterizing a cell based on the
5 pattern of protein expression produced thereby, or determining the effect of varying binding conditions on the binding affinity of the antibodies.

33. A kit according to claim 31 wherein the antibodies are monoclonal antibodies, polyclonal
10 antibodies or antibody fragments.

34. A kit according to claim 33 wherein the antibody fragments are single chain antibodies.

35. A kit according to claim 31 wherein the antibodies are recombinant antibodies.

15 36. A kit according to claim 31 further comprising reagents for detecting an antigen and instructions for use thereof.

37. A kit comprising:

(a) an array of antibodies on a solid surface; and

20 (b) instructions for using the array; wherein the instructions are for diagnosing a disorder, characterizing a cell based on the pattern of protein expression produced thereby, or comparing protein expression in two or more populations of cells.

25 38. A kit according to claim 37 further comprising reagents for detecting an antigen and instructions for use thereof.

39. A kit according to claim 37 wherein the antibodies are recombinant antibodies.

40.   A kit according to claim 37 wherein the antibodies are single chain antibodies.

41.   A method of comparing protein expression patterns, said method comprising:

5   (a)   contacting a microarray of nucleic acid samples derived from different sources with one or more nucleic acid probes and

(b)   identifying the sample or samples to which the probe(s) binds.

10   42.   A method according to claim 41 wherein the microarray comprises nucleic acid samples derived from a single tissue type but from different species.

43.   A method according to claim 41 wherein the microarray comprises nucleic acid samples derived from a
15   single species but from different tissue types.

44.   A method according to   claim 41 wherein the microarray comprises nucleic acid samples derived from the same tissue type at different developmental stages.

45.   A method according to claim 41 wherein the
20   nucleic acid samples are comprised of mRNA or cDNA.

46.   A method according to claim 41 wherein the probe is detectably labeled.

47.   A method according to claim 46 wherein the detectable label is a fluorescent label.

25   48.   A method according to claim 18 wherein the first and second cell lysates are derived from cells from a single tissue type but from different species.

49.   A method according to claim 18 wherein the first and second cell lysates are derived from cells from a single species but from different tissue types.

50.   A method according to claim 18 wherein the first and second cell lysates are derived from cells from the same tissue type at different developmental stages.

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